

Statistical Sampling: Policy Issues for Tax Administrators

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Dr. Don Roberts
University of Illinois, dmrobert@uiuc.edu

Dr. Will Yancey, CPA
Dallas, Texas, will@willyancey.com

Outline

- I. Sampling Plans: Design and Training
- II. Sample Size
- III. Statistical Validity
- IV. Production of Electronic Data
- V. State's Authority to Sample
- VI. Uniformity Across States

Who Should Design Sampling Plan?

- Qualifications
 - Knowledge of Taxpayer Accounting System
 - Computer Skills
 - Statistical Knowledge
- Taxpayer Involvement
 - Taxpayer's knowledge of records
 - Involving taxpayer in planning may reduce some subsequent disputes

Training

Accounting: Ability to understand complex accounting systems

Information technology: Ability to extract desired information

Statistical sampling: Working knowledge of statistical sampling principles and techniques

Importance of Sample Size

- Affects Statistical Validity
- Determines Chance of Observing Errors
- Affects Closeness of Estimate to Results of Complete Coverage
- Impacts time and cost to complete field work

Validity of Estimates

- Large Samples Required
- Some Estimators Sensitive to Sample Size

Chance of Observing Errors

Depends on Proportion of Errors

- If 2% of Amounts in Error
 - Sample of 100 Provides:
 - 87% Chance of Observing At Least 1
 - 32% Chance of Observing At Least 3.
- If 2% of Amounts in Error
 - Sample of 200 Provides :
 - 98% Chance of Observing At least 1
 - 76% Chance of Observing At Least 3.

Comparison to Complete Coverage

- Being Close Is More Important When Using Point Estimate
- Closeness Matters Less When Using Lower Limit
- Closeness Measured by Relative Precision at Specified Confidence

Alternate policies

- Use Point Estimate with Target Relative Precision
 - Target may not always be possible to attain
 - Expanding sample during audit may affect statistical validity
- Use either the lower or upper confidence limit
 - Conservative
 - Usually favorable to taxpayer
- Use combination
 - Point Estimate when Relative Precision is Small
 - Conservative Limit when Relative Precision is too Large

Minimum Number of Observed Errors

- Why establish a minimum?
 - Encourages careful definition of target population
 - Provides better estimates of variability of errors
 - May aid achieving nominal confidence level
- Should minimum be overall or by stratum?
 - Need research
- Some effects

Production of Electronic Data

- Selecting accounts of interest to tax auditor and taxpayer.
- Defining what records and fields should be provided in electronic, paper, or imaged format.
- Taxpayer concerns:
 - Will my data be used as a “fishing expedition” to generate leads for other audits?
 - Do field auditor and computer audit specialist (CAS) understand what the data represents?
 - Can we keep data on taxpayer’s computer and provide only summaries to CAS?

Defining Sampling Frame

- Verify Completeness
 - Reconciliation of transaction download to general ledger may be difficult due to journal entries.
 - Compare data totals across months.
 - Other methods such as tracing and observing extraction procedures.
- Excluding irrelevant data
 - Journal entries may be irrelevant to audits of transaction line items.

State's Authority to Sample

- When taxpayer has inadequate records
 - Statutes, regulations, or judicial opinions support auditor's ability to sample or estimate.
- When taxpayer has adequate but voluminous records, should a sample or complete actual basis examination be used?
 - Can auditor compel sample?
 - Can taxpayer compel sample?

Uniformity across States

- Benefits of uniformity
 - Benefits to multistate taxpayers and multistate MTC auditors.
 - How significant are these benefits when each state retains separate authority?
- Disagreements over mandatory rules
 - Differences between states
 - Differences between taxpayers
 - Differences between field auditors and CAS

Conclusion:

Need for Continuing Dialogue

- Revenue administrators and auditors
 - MTC, FTA, State, Local
- Taxpayers and their associations
 - COST, state bar associations, etc.
- Research
 - Applied statistics research

References on tax audit sampling

<http://willyancey.com/sampling.htm>

<http://willyancey.com/sampling-income-tax.html>